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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/381,528 01/04/00 TAKETOMI

Y YAO-V04302

EXAMINER

MM91/0706

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ART UNIT

PAPER NUMBER

2872

DATE MAILED:

07/06/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.

09/381,528

Applicant(s)

TAKETOMI ET AL.

Examiner

Audrey Y. Chang

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 April 2001.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 4-7, 13 and 15-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 4-7, 13 and 15-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 13. 6) ☐ Other: _____

DETAILED ACTION

Remark

1. This Office Action is in response to applicant's amendment filed on April 16, 2001, which has been entered as paper number 12.
2. By this amendment, the applicant has amended claims 4, 6, 7, 13 and 17 and the applicant has canceled claim 1.
3. Claims 4-7, 13, 15-18 remain pending in this application.
4. The rejections to the claims under 25 USC 112, second paragraph, set forth in the previous Office Action are withdrawn in response to applicant's amendment.

Response to Amendment

5. The amendment filed on April 16, 2001 is objected to under 35 U.S.C. 132 because it introduces new matter into the disclosure. 35 U.S.C. 132 states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows: claim 4 has been amended to include the feature "the light having the information of object is reconstructed light obtained by reconstructing a transmission-type hologram which is formed by object light obtained by irradiating the object which is positioned between a slit and the transmission-type hologram" wherein the specification fails to teach how could a transmission-type hologram exists before it is formed. Corrections are required.

Applicant is required to cancel the new matter in the reply to this Office Action.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it

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pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

7. Claim 4 is rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The reasons for rejection base on newly added matter is set forth in the paragraph above.

8. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

9. Claims 4-7, 13, and 15-18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The phrases “reconstructed image” and “reconstructed light” recited in claims 4, 6, 7, 13 and 17 appear to be confusing since it is not clear if these two phrases are the same or not. The phrase “reconstructed light of a transmission-type hologram” recited in claims 4, 6, 7 and 17 appears to vague and indefinite since it is not clear what does this phrase refer to. It is not clear if this is the light used to “reconstruct” the transmission type hologram or is the hologram image reconstructed from the hologram. Clarifications are required.

The phrase “one direction of the hologram” recited in claim 13 appears to be vague and indefinite since it is not clear what is the “direction” of a hologram.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

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A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 4, 6, 13, 15 and 17 are rejected under 35 U.S.C. 102(b) as being anticipated by the patent issued to Kulick et al (PN. 5,757,522).

Kulick et al teaches a *holographic display* that is comprised of a *holographic plate* (33 of Figure 7 or 77 of Figure 9) and a *light source* (56). Kulick et al teaches that the hologram recorded on the holographic plate (33 or 77) is produced by interfering a *reference light beam* with a light beam having an *object information* generated from a *transmission master hologram* (32 or 75), (please see Figures 7 or 9). Kulick et al further teaches that the transmission master hologram (32 or 75) is produced by splitting a light beam generated by a laser light source (20) into a reference light beam (26) and an object light beam (28) wherein the object light beam (28) is *diffusedly* reflected by a mirror (34) to the object (36). The diffusedly reflected object light beam passes through a *spatial filter* (F), which serves as the *slit*, to control the size of the light beam before it irradiates the object (36). The object light beam then interferes with the reference light beam (26) at the holographic plate (32) to create the transmission master hologram (32), (please see Figure 4 and columns 3-5). Kulick et al teaches that the holographic display may be either of transmission mode (33 Figure 7) or of reflection mode (77, Figure 9) wherein the object information is displayed by irradiate the holographic plate (33 or 77) with a reconstruction light beam that is the same as the reference beam used to create the holographic display (33 or 77).

With regard to claims 6 and 17 Kulick et al teaches that the holographic display plate (33 or 77) may be created as a rainbow hologram wherein the holographic image of the object may be viewable by using a white light. The rainbow hologram is created by allowing only a slit of light from the master hologram (32) to illuminate the holographic plate (33 or 77). Kulick et al teaches that the confinement of the illumination may be achieved by masking the mater hologram using a masking plate having apertures or slits to create the slit beam, (please see column 4, lines 19-23). It is implicitly true that the mask

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having the slits or apertures must be placed adjacent to the transmission master hologram in order to confine object light beam from the master hologram to form a slit illumination.

This reference has therefore anticipated the claims.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over the patent issued to Kulick et al. in view of the patent issued to Odhner et al (PN. 5,613,022).

The holographic display comprising a reflection type holographic plate taught by Kulick et al as described for claim 4 above has met all the limitations of the claim. Kulick et al teaches that the object light beam (26) for irradiating the object from the mirror (34) is a diffused light, (please see column 3, lines 30-35), however it does not teach that the diffusion is caused by using a ground glass. But it is rather common in the art to use ground glass to create diffusion light as demonstrated by the teachings of Odhner et al. Odhner et al in the same field of endeavor teaches a holographic recording scheme wherein the object light passes through a ground glass (112) to create a diffused object light which then passes through a slit (116) to record a slit object image holographically on a recording medium, (please see Figure 13). It would therefore have been obvious to one skilled in the art to apply the teachings of Odhner et al to use ground glass as an alternative diffusing means to provide diffused object light.

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5. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over the patent issued to Kulick et al.

Kulick et al teaches a *holographic display* that is comprised of a *holographic plate* (33 of Figure 7 or 77 of Figure 9) and a *light source* (56). Kulick et al teaches that the hologram recorded on the holographic plate (33 or 77) is produced by interfering a *reference light beam* with a light beam having an *object information* generated from a *transmission master hologram* (32 or 75), (please see Figures 7 or 9). Kulick et al further teaches that the transmission master hologram (32 or 75) is produced by splitting a light beam generated by a laser light source (20) into a reference light beam (26) and an object light beam (28) wherein the object light beam (28) is *diffusedly* reflected by a mirror (34) to the object (36). The diffusedly reflected object light beam passes through a *spatial filter* (F), which serves as the *slit*, to control the size of the light beam before it irradiates the object (36). The object light beam then interferes with the reference light beam (26) at the holographic plate (32) to create the transmission master hologram (32), (please see Figure 4 and columns 3-5). Kulick et al teaches that the holographic display may be either of transmission mode (33 Figure 7) or of reflection mode (77, Figure 9) wherein the object information is displayed by irradiate the holographic plate (33 or 77) with a reconstruction light beam that is the same as the reference beam used to create the holographic display (33 or 77).

Kulick et al further teaches that the holographic display plate (33 or 77) may be created as a rainbow hologram wherein the holographic image of the object may be viewable by using a white light. The rainbow hologram is created by allowing only a slit of light from the master hologram (32) to illuminate the holographic plate (33 or 77). Kulick et al teaches that the confinement of the illumination may be achieved by either using a cylindrical lens to create a slit beam or masking the mater hologram using a masking plate having apertures or slits to create the slit beam, (please see column 4, lines 19-23). It is implicitly true that the cylindrical lens and the mask having the slits or apertures must be placed adjacent to the transmission master hologram in order to confine object light beam from the master

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hologram to form a slit illumination. But it does not teach that both the mask and the cylindrical lens are used to create the slit beam. However such modification would have been obvious to one skilled in the art since both of the elements create confined slit beam to use both of them would require only routine skilled in the art and rearranging the elements in the display.

This reference has therefore anticipated the claims.

6. Claims 16 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over the patent issued to Kulick et al.

The holographic display having the reflection type holographic plate taught by Kulick et al as described for claims 13, 15 and 17 above has met all the limitations of the claims. This reference teaches that the reference light beam is in a direction orthogonal to the diffused light beam, (please see Figure 7 and 9) however it does not teach explicitly that the reference light for creating the holographic plate is provided by having a plurality of light superposing on one another. However as long as the reference light is kept in coherent with the object light beam or the diffused light beam the reference may easily be modified to have a superposition of a plurality of light beam for the benefit of providing an alternative way of creating a reference light beam.

Response to Arguments

7. Applicant's arguments with respect to claims 4-7, 13, and 15-18 have been considered but are moot in view of the new ground(s) of rejection.

8. The newly amended claims have been fully considered and they are rejected for the reasons stated above.

9. Applicant's arguments are drawn to newly amended features and they have been fully addressed in paragraphs above.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US patent issued to Huang et al (PN. 5,293,259) teaches creating rainbow hologram using mask or cylindrical lens to confine the light beam from a master hologram.

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

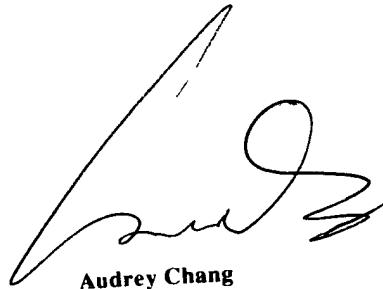
12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Audrey Y. Chang whose telephone number is 703-305-6208. The examiner can normally be reached on Monday-Friday (8:00-4:30), alternative Mondays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cassandra Spyrou can be reached on 703-308-1637. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-308-7722 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

A. Chang, Ph.D.
July 3, 2001.

A handwritten signature in black ink, appearing to read 'Audrey Chang', with a large, sweeping initial 'A' and a stylized 'C'.

**Audrey Chang
Primary Examiner
Technology Center 2800**